AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims

1. (Currently Amended) A method for improving a network connection in a wireless network, said method comprising the steps of:

determining at least one quality measure for a channel of said network connection;

continuously estimating, by a transmitter in a network, a quality condition for said channel based on said at least one quality measure, such estimation made by the transmitter based on at least one parameter selected from the group consisting of a transmitter power value (Q_{PA}), and a number of retransmissions (Q_{ARQ});

dynamically determining from the continuously estimated quality condition whether the channel is primarily noise limited or primarily interference limited wherein the step of determining whether the channel is primarily noise limited or interference limited is performed individually for different packet types; and

selecting a packet type to be transmitted by the transmitter over said channel based on the determination of whether the channel is primarily noise limited or primarily interference limited~~, wherein the step of determining whether the channel is primarily noise limited or interference limited is performed individually for different packet types~~.

2.-4. (Canceled)

5. (Original) The method according to claim 1, wherein which one of said at least one quality measure is determined varies depending on a previously selected packet type.

6. (Original) The method according to claim 1, wherein an uncoded packet type is selected if said channel is primarily interference limited.

7. (Original) The method according to claim 1, wherein a coded packet type is selected if said channel is primarily noise limited.

8. (Original) The method according to claim 1, wherein a relatively short packet type is selected if said channel has a high bit error rate.

9. (Original) The method according to claim 1, wherein a relatively long, uncoded packet type is selected if said channel is neither interference limited nor noise limited.

10. (Original) The method according to claim 1, wherein said selected packet type is the same as a previously selected packet type.

11. (Original) The method according to claim 1, wherein said selected packet type is different from a previously selected packet type.

12. (Original) The method according to claim 1, wherein said network is an ad hoc network.

13. (Original) The method according to claim 1, wherein said network is a Bluetooth (TM) wireless network.

14. (Original) The method according to claim 1, wherein said step of estimating said quality condition includes comparing said at least one quality measure to a predefined value.

15. (Original) The method according to claim 1, wherein said step of selecting a packet type includes waiting for a predefined time period before selecting said packet type.

16. – 20. (Canceled).

21. (Currently Amended) A communications device for communicating over a network connection in a wireless network, said device comprising:

a transmitter having a channel quality processor for determining at least one quality measure of a channel of said network connection;

a channel condition processor coupled to said channel quality processor ~~for estimating~~ adapted to continuously estimate a quality condition of said channel based on said at least one quality measure, wherein said estimation is based on at least one quality measure parameter selected from the group consisting of transmitter power value (Q_{PA}), and the number of retransmissions (Q_{ARQ});

~~determining from~~ the channel condition processor further adapted to dynamically determine, based on the continuously estimated quality condition, whether the channel is primarily noise limited or primarily interference limited; [[and]]

a packet type selector coupled to the channel condition processor ~~for selecting~~ adapted to select a packet type to be transmitted over said channel based on the dynamic determination of whether the channel is primarily noise limited or primarily interference limited;

the channel condition processor being adapted to estimate and determine whether the channel is primarily noise limited or interference limited from packet to packet; and

wherein the channel condition processor is further adapted to determine whether the channel is primarily noise limited or interference limited individually for different packet types.

22. -24. (Canceled)

25. (Original) The communications device according to claim 21, wherein which one of said at least one quality measure is determined varies depending on a previously selected packet type.

26. (Original) The communications device according to claim 21, wherein said packet type selector selects an uncoded packet type if said channel condition processor determines that said channel is primarily interference limited.

27. (Original) The communications device according to claim 21, wherein said packet type selector selects a coded packet type if said channel condition processor determines that said channel is primarily noise limited.

28. (Original) The communications device according to claim 21, wherein said packet type selector selects a relatively short packet type if said channel condition processor determines that said channel has a high bit error rate.

29. (Original) The communications device according to claim 21, wherein said packet type selector selects a relatively long, uncoded packet type if said channel condition processor determines that said channel is neither interference limited nor noise limited.

30. (Original) The communications device according to claim 21, wherein said selected packet type is the same as a previously selected packet type.

31. (Original) The communications device according to claim 21, wherein said selected packet type is different from a previously selected packet type.

32. (Original) The communications device according to claim 21, wherein said network is an ad hoc network.

33. (Original) The communications device according to claim 21, wherein said network is a Bluetooth (TM) wireless network.

34. (Original) The communications device according to claim 21, wherein said channel condition processor is configured to compare said at least one quality measure to a predefined value.

35. (Original) The communications device according to claim 21, further comprising a timer, wherein said packet type selector is adapted to wait for said timer to expire before selecting said packet type.

36. – 41. (Canceled)

42. (New) The method of Claim 1, wherein the continuously estimating by the transmitter of a quality condition based on the transmitter power value (Q_{PA}) depends on the voltage applied across the power amplifier of the transmitter (V_{PA}).

43. (New) The method of Claim 42, further comprising updating the QPA value for the (k+1)th packet using the V_{PA} value for the (k+1)th packet and the previous Q_{PA} value as follows:

$Q_{PA}(k+1) = f_{PA}(Q_{PA}(k), V_{PA}(k+1))$,

where f_{PA} denotes a function used to update the Q_{PA} quality measure.

44. (New) The method of Claim 43 wherein the function f_{PA} is one selected from the group consisting of an auto regressive function; a moving average function and an average up to time (k+1) function.

45. (New) The method of Claim 1, wherein the continuously estimating, by a transmitter in a network, of a quality condition based on the number of retransmissions (Q_{ARQ}) further comprises the step of updating the Q_{ARQ} value for the (k+1)th packet using the M_{ARQ} value for the (k+1)th packet and the previous Q_{ARQ} value.

46. (New) The method of Claim 45, wherein the MARQ value can reflect whether the last transmitted packet was accepted at the other side or the number of times a packet has been updated.

47. (New) The method of Claim 1, further comprising the step of determining, without trial and error, how many errors have been corrected by the code and, based on that result, if the code rate should be changed.

48. (New) The method of Claim 21 further comprising the channel condition processor adapted to adjust packet size and forward error correction capability in dependence on each other.

49. (New) The method of Claim 21, further comprising the channel condition processor adapted to determine, without trial and error, how many errors have been corrected by the code and, based on that result, if the code rate should be changed.

50. (New) A method for improving a network connection in a wireless network, said method comprising the steps of:

determining at least one quality measure for a channel of a network connection;

continuously estimating, by a receiver in a network, a quality condition for said channel based on at least one quality measure selected from the group consisting of: an RSSI value (QRSSI); an error detection scheme (QCRC); a forward error correction code (FEC) (QFEC); a time synchronization (QTSYNC); and a frequency synchronization (QFSYNC);

dynamically determining from the estimated quality condition whether the channel is primarily noise limited or primarily interference, wherein the step of dynamically determining whether the channel is primarily noise limited or interference limited is performed individually for different packet types; and

selecting a packet type to be transmitted over said channel based on the determination of whether the channel is primarily noise limited or primarily interference limited.

51. The method of Claim 50, further comprising the step of determining, without trial and error, how many errors have been corrected by the code and, based on that result, if the code rate should be changed.

52. (New) The method of Claim 50, wherein the step of continuously estimating, by a receiver, of a quality condition based on an RSSI value (Q_{RSSI}) further comprises updating the Q_{RSSI} value for the (k+1)th packet using the RSSI value for the (k+1)th packet and the previous Q_{RSSI} value as follows:

$$Q_{RSSI}(k+1) = f_{RSSI}(k), R_{SSI}(k + 1))$$

where f_{RSSI} denotes a function for updating the Q_{RSSI} quality measure.

53. (New) The method of Claim 52 wherein the function is one selected from the group consisting of an auto regressive function; a moving average function and a average up to time (k+1) function.

54. (New) The method of Claim 50, wherein the step of continuously estimating, by a receiver of a quality condition based the number of packets that have been declared as having been correctly received using an error detection scheme (Q_{CRC}) further comprises the step of updating the Q_{CRC} using the M_{CRC} value for the (k+1)th packet and the previous Q_{CRC} value.

55. (New) The method of Claim 50, wherein the step of continuously estimating, by a receiver of a quality condition based on the number of errors corrected using a forward error correction code (FEC) (Q_{FEC}) further comprises the step of updating the Q_{FEC} using an M_{FEC} value for the (k+1)th packet and the previous Q_{FEC} value, where M_{FEC} is a momentary quality measure indicating the number of errors per packet per codeword, as follows: $Q_{FEC}(k+1) = FEC(Q_{FEC}(k), M_{FEC}(k+1))$.

adapting packet size and forward error correction capability in dependence on each other;

56. (New) The method of Claim 50, wherein the step of continuously estimating, by a receiver of a quality condition based on how well time synchronization is performed (QTSYNC) further comprises the step of updating the QTSYNC value for the (k+1)th packet using an MTSYNC value for the (k+1)th packet and the previous QTSYNC value wherein the MTSYNC value reflects the quality of a time synchronization.

57. (New) The method of Claim 56, further comprising the step of obtaining the time synchronization by correlating the received signal with a known synchronization word.

58. (New) The method of Claim 50, wherein the step of continuously estimating, by a receiver of a quality condition based on how well frequency synchronization is performed (QFSYNC) further comprises the step of updating the QFSYNC value for the (k+1)th packet by using the MFSYNC value for the (k+1)th packet and the previous QFSYNC value, wherein the MFSYNC value reflects the quality of the frequency synchronization.

59. (New) The method of Claims 50, wherein the continuously estimating step is made by the receiver and a transmitter working in tandem based on a standardized algorithm.

60. (New) A communications device for communicating over a network connection in a wireless network, said device comprising:

a receiver having a channel quality processor for determining at least one quality measure of a channel of said network connection;

a channel condition processor coupled to said channel quality processor adapted to continuously estimate a quality condition of said channel based on said at least one quality measure, wherein said estimation based on at least one quality measure parameter selected from the group consisting of an RSSI value (Q_{RSSI}); an error detection scheme (Q_{CRC}); a forward error correction code (FEC) (Q_{FEC}); a time synchronization scheme (Q_{TSYNC}); and a frequency synchronization (Q_{FSYNC}) scheme;

the channel condition processor further adapted to dynamically determine, based on the estimated quality condition, whether the channel is primarily noise limited or primarily interference limited;

a packet type selector coupled to the channel condition processor adapted to select a packet type to be transmitted over said channel based on the determination of whether the channel is primarily noise limited or primarily interference limited;

the channel condition processor being adapted to estimate and determine whether the channel is primarily noise limited or interference limited from packet to packet; and

wherein the channel condition processor is further adapted to determine whether the channel is primarily noise limited or interference limited individually for different packet types.

61. (New) The communications device of Claim 60, wherein the continuously estimating step is made by the receiver and a transmitter working in tandem based on a standardized algorithm.

62. (New) The communications device according to claim 60, wherein the choice of at least one quality measure varies depending on a previously selected packet type.

63. (New) The communications device according to claim 60, wherein the packet type selector selects an uncoded packet type if the channel condition processor determines that the channel is primarily interference limited.

64. (New) The communications device according to claim 60, wherein the packet type selector selects a coded packet type if the channel condition processor determines that the channel is primarily noise limited.

65. (New) The communications device according to claim 60, wherein the packet type selector selects a relatively short packet type if the channel condition processor determines that the channel has a high bit error rate.

66. (New) The communications device according to claim 60, wherein the packet type selector selects a relatively long, uncoded packet type if the channel condition processor determines that the channel is neither interference limited nor noise limited.

67. (New) The communications device according to claim 60, wherein the selected packet type is the same as a previously selected packet type.

68. (New) The communications device according to claim 60, wherein the selected packet type is different from a previously selected packet type.

69. (New) The communications device according to claim 60, wherein the network is an ad hoc network.

70. (New) The communications device according to claim 60, wherein the network is a Bluetooth (TM) wireless network.

71. (New) The communications device according to claim 60, wherein the channel condition processor is configured to compare said at least one quality measure to a predefined value.

72. (New) The communications device according to claim 60, further comprising a timer, wherein the packet type selector is adapted to wait for the timer to expire before selecting the packet type.

73. (New) The communications device according to claim 60, wherein the channel condition processor is configured to ignore transmitter side quality measures and to use only quality measures determined based on information obtained from the receiver.

74. (New) The communications device according to claim 60, wherein the channel condition processor is adapted to adjust packet size and forward error correction capability in dependence on each other.

75. (New) The communications device according to claim 60, wherein the channel condition processor adapted to determine, without trial and error, how many errors have been corrected by the code and, based on that result, if the code rate should be changed.